

	<b>PROGETTISTA</b> 	<b>COMMESSA</b> NQ/R20133	<b>UNITA'</b> 000
	<b>LOCALITA'</b> REGIONE SICILIA	<b>REL-SIS-E-03024</b> <b>ALLEGATO 4</b>	
	<b>PROGETTO</b> RIFACIMENTO DERIVAZIONE PER PORTO EMPEDOCLE DN 300 (12"), DP 24 bar ed opere connesse		<b>Rev.</b>

**Rifacimento derivazione per Porto Empedocle**  
**DN 300 (12"), DP 24 bar**  
**ed opere connesse**

**CARATTERIZZAZIONE DELLA SISMICITÀ**

**ALLEGATO 4**

**CARTA DELLE AREE POTENZIALMENTE LIQUEFACIBILI**

LIQUEFACTION ANALYSIS REPORT

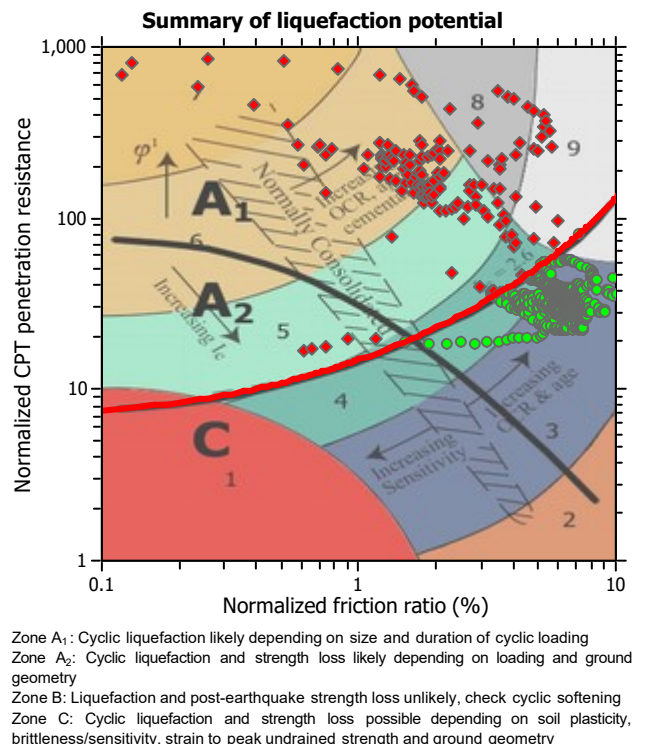
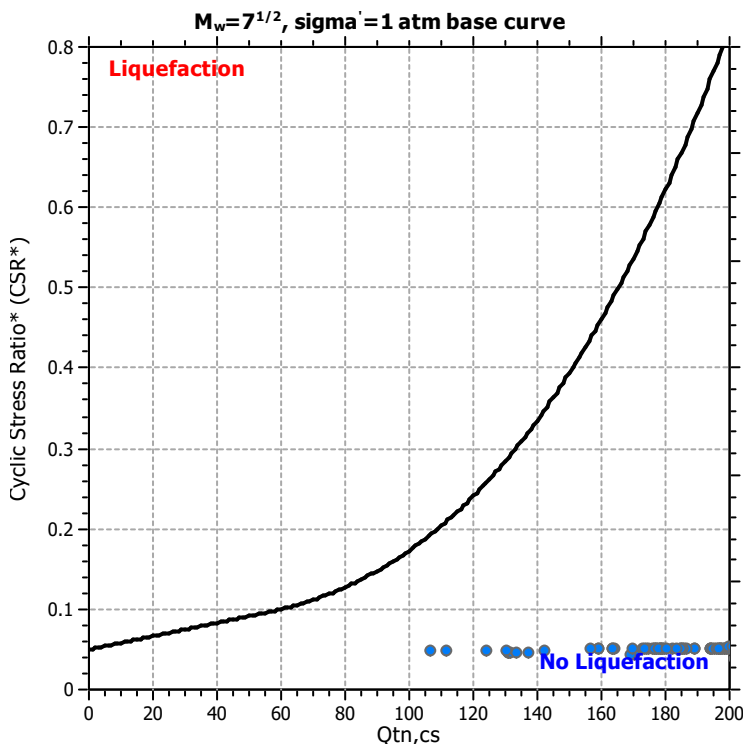
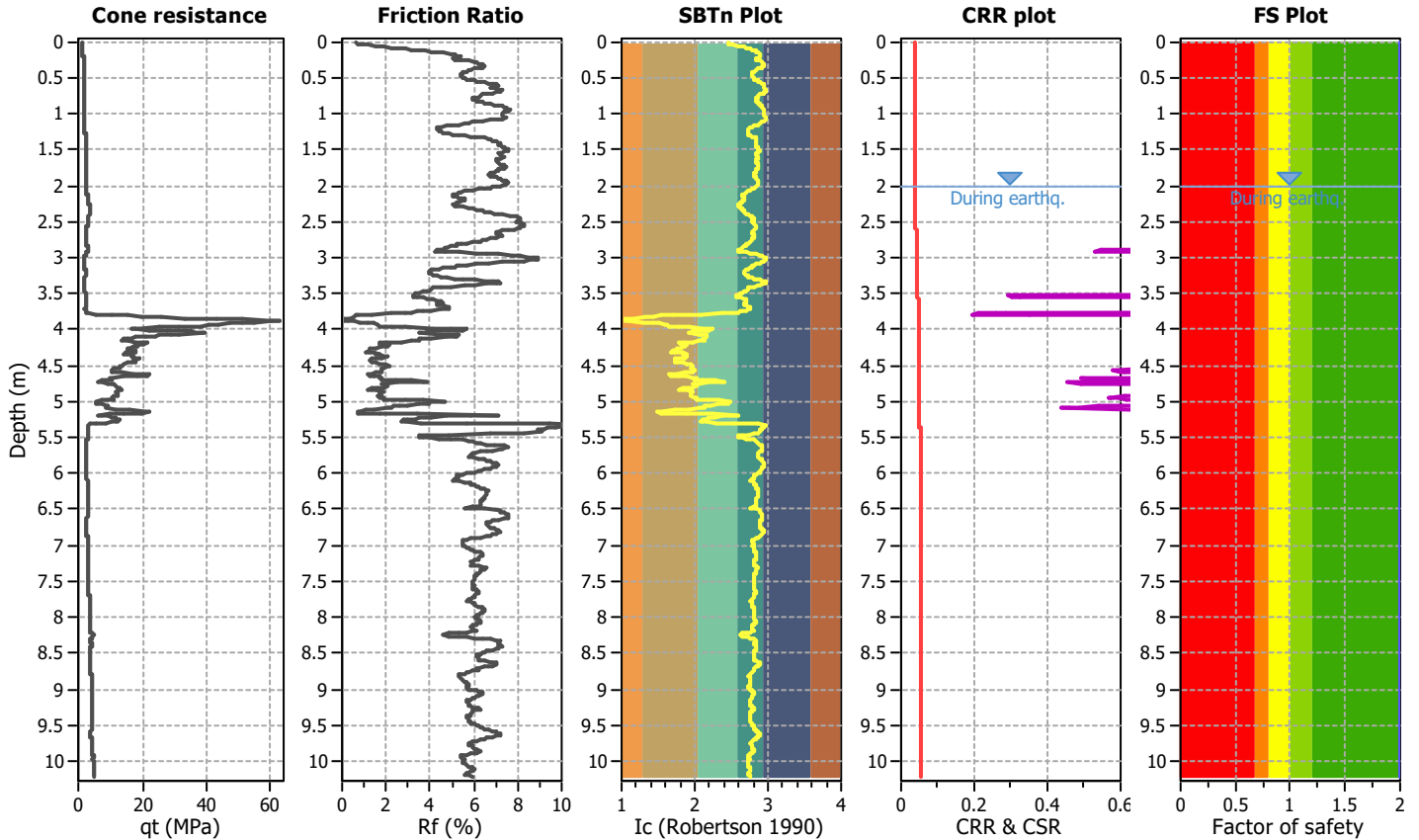
Project title : Met. Der. Porto Empedocle

Location :

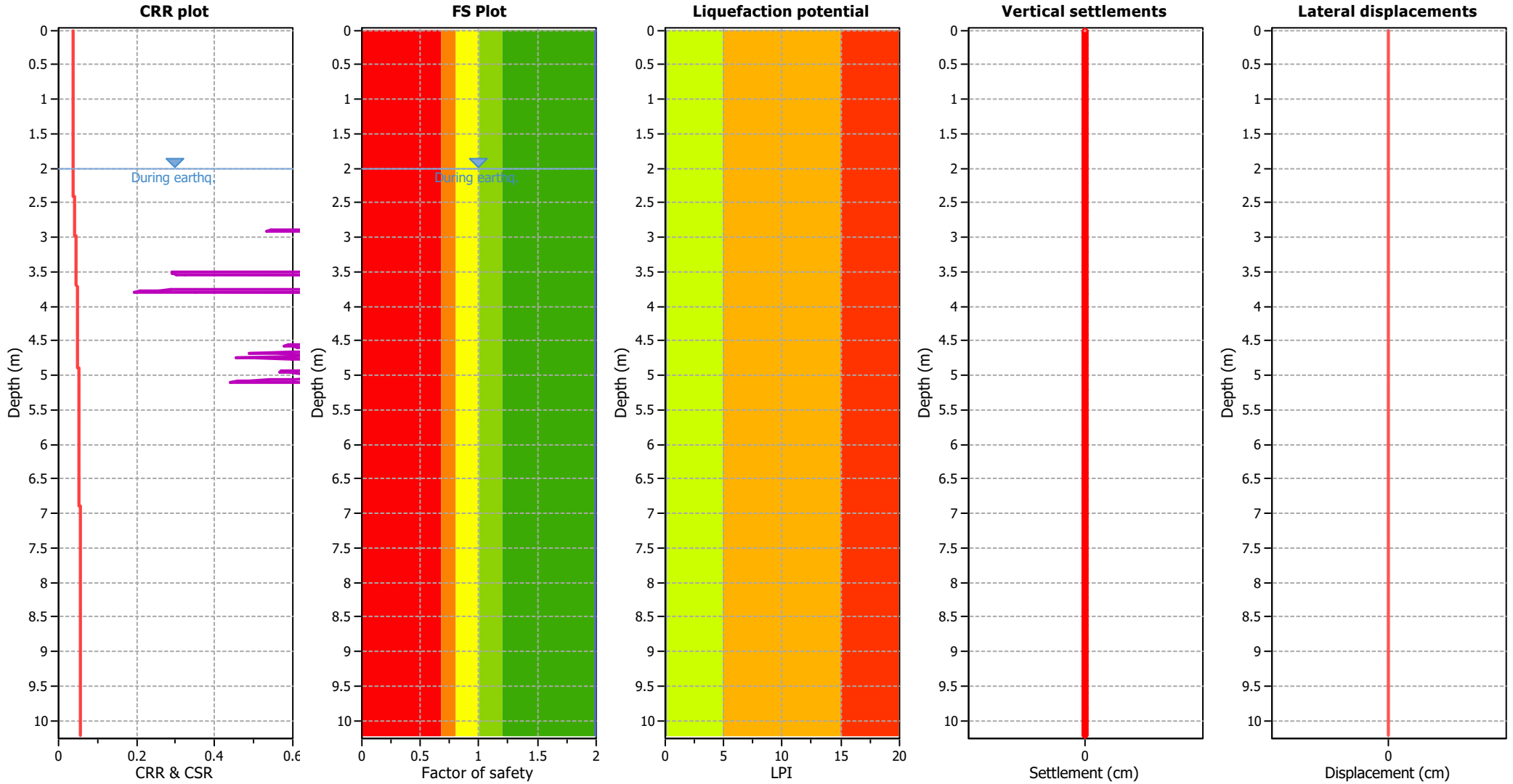
CPT file : pe-b-c33

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	2.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude $M_w$ :	5.75	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.11	Unit weight calculation:	Based on SBT	$K_o$ applied:	Yes		



### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	NCEER (1998)	Depth to water table (earthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_0$ applied:	Yes
Earthquake magnitude $M_w$ :	5.75	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.11	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	N/A

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

LIQUEFACTION ANALYSIS REPORT

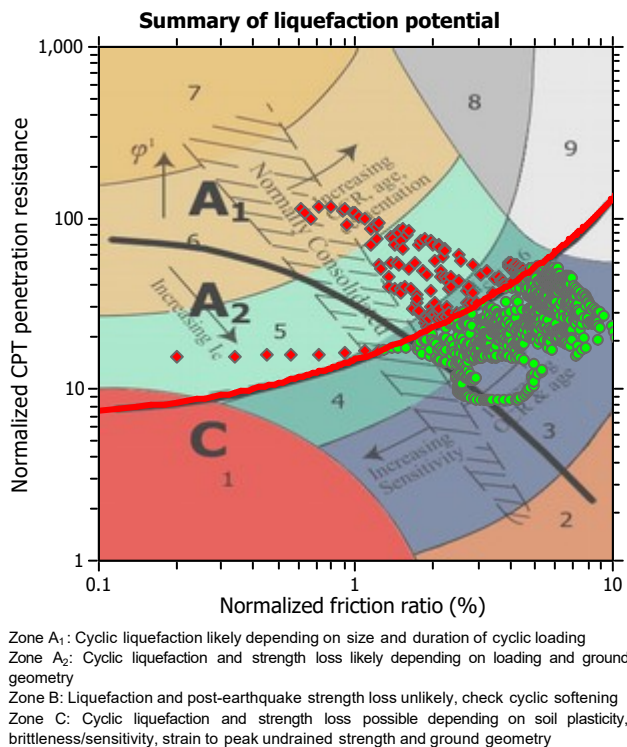
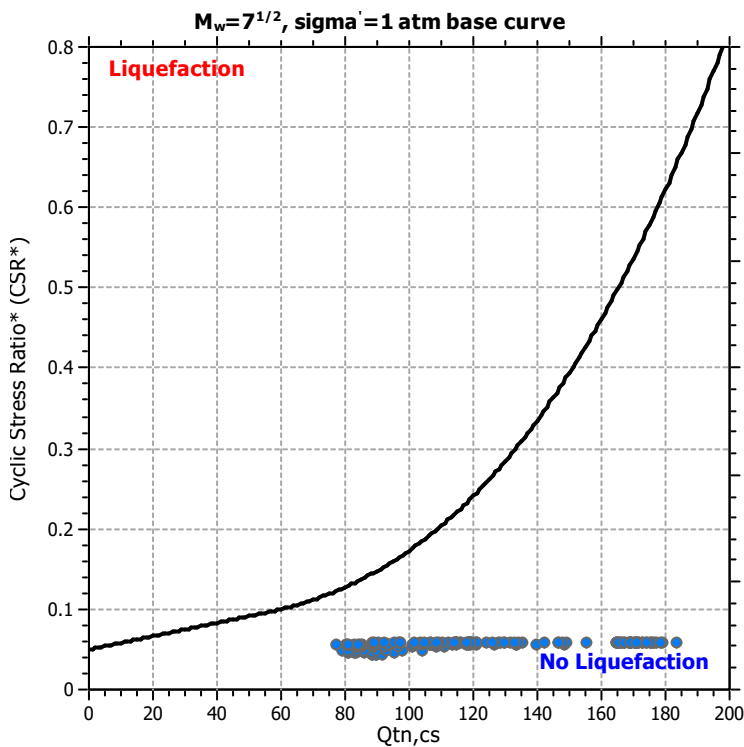
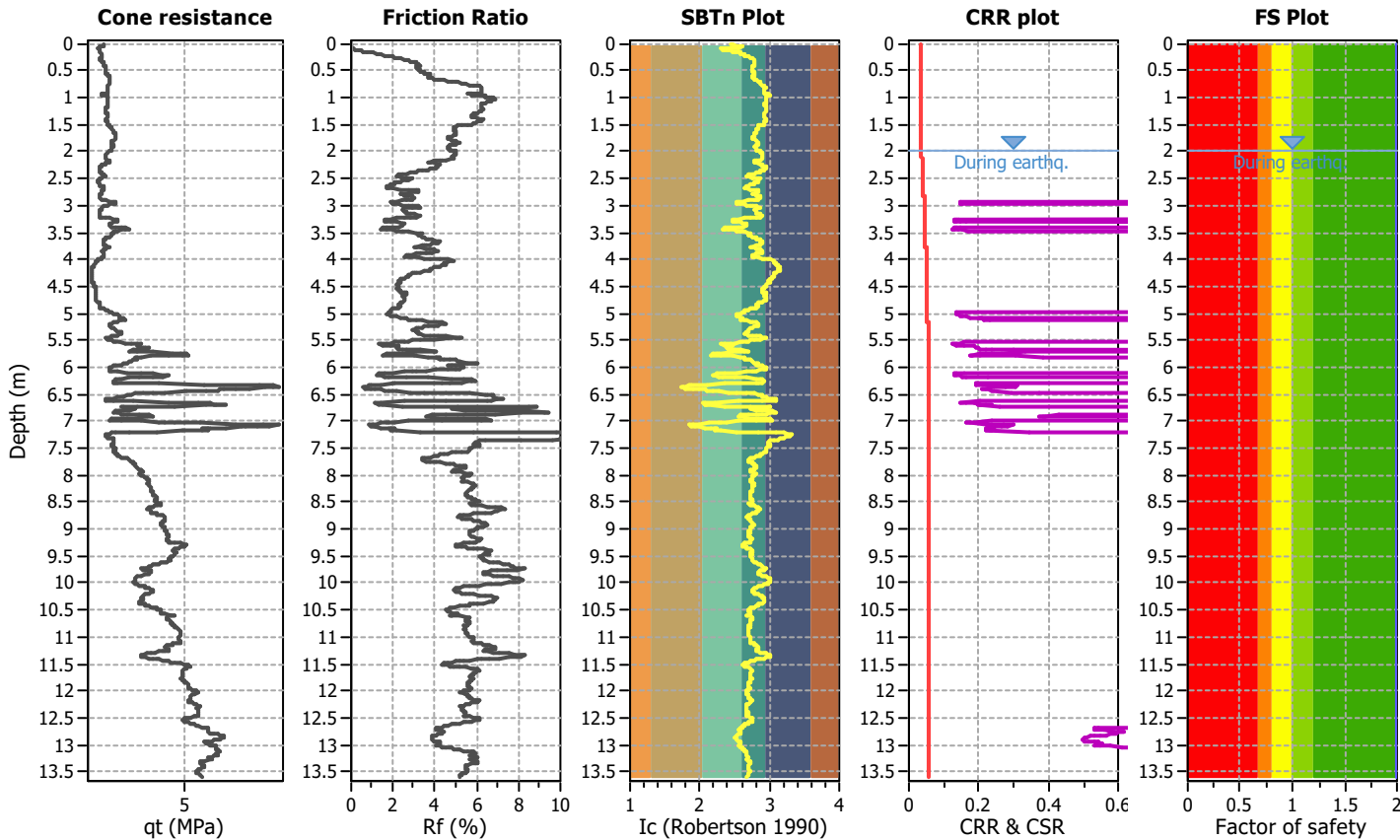
Project title : Met. Der. Porto Empedocle

Location :

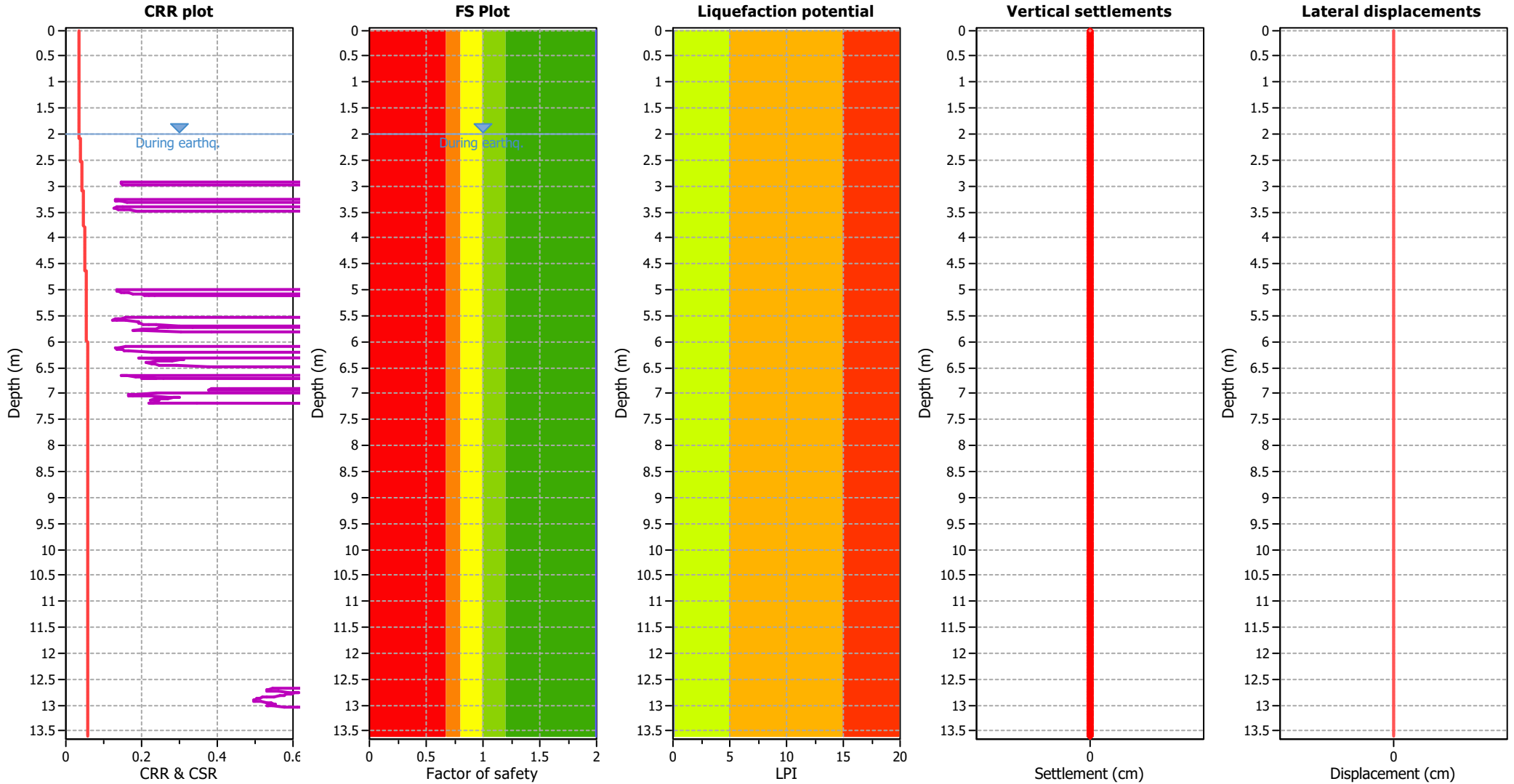
CPT file : pe-b-c39

Input parameters and analysis data

Analysis method:	NCEER (1998)	G.W.T. (in-situ):	2.00 m	Use fill:	No	Clay like behavior applied:	Sands only
Fines correction method:	NCEER (1998)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude $M_w$ :	5.75	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.11	Unit weight calculation:	Based on SBT	$K_0$ applied:	Yes		



### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	NCEER (1998)	Depth to water table (earthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	NCEER (1998)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_0$ applied:	Yes
Earthquake magnitude $M_w$ :	5.75	Unit weight calculation:	Based on SBT	Clay like behavior applied:	Sands only
Peak ground acceleration:	0.11	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	N/A

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

LIQUEFACTION ANALYSIS REPORT

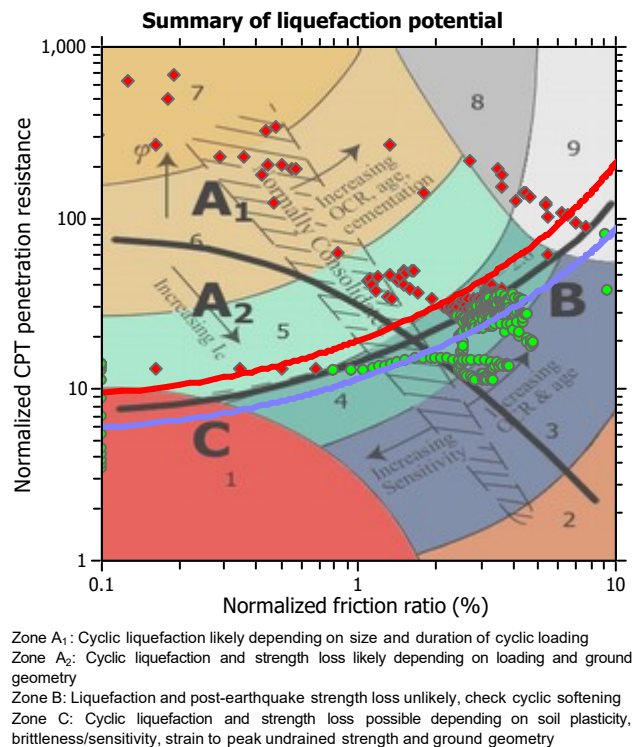
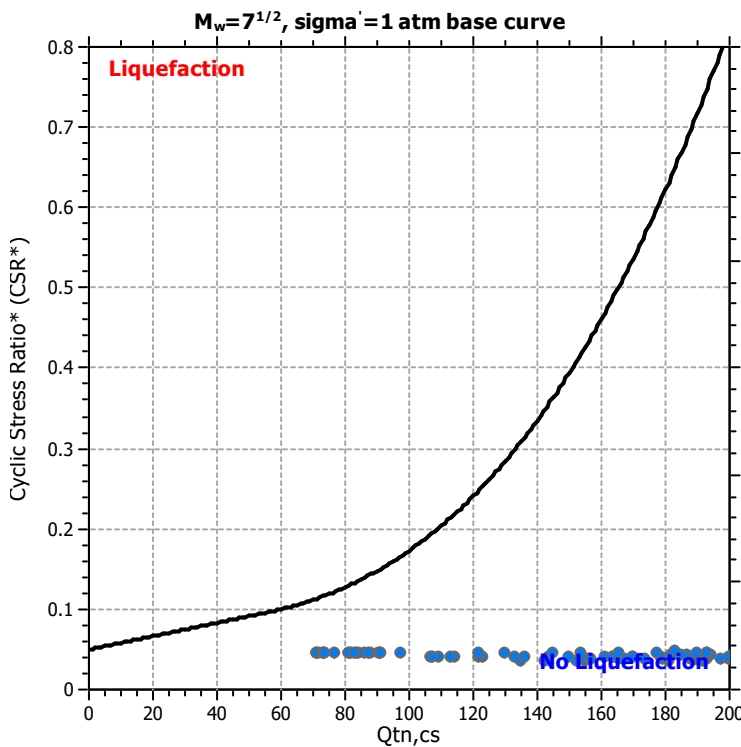
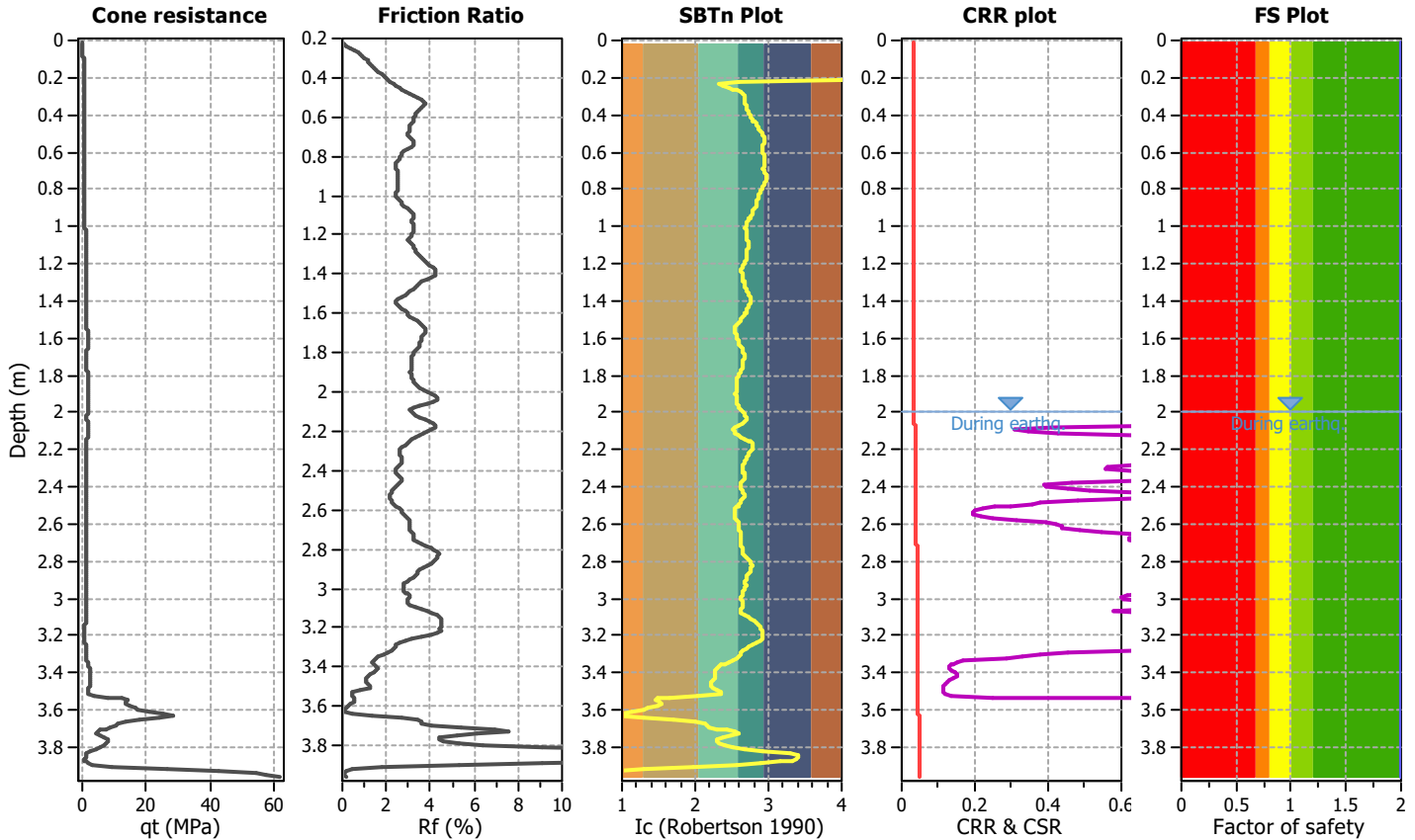
Project title : Met. Der. Porto Empedocle

Location :

CPT file : pe-b-c47

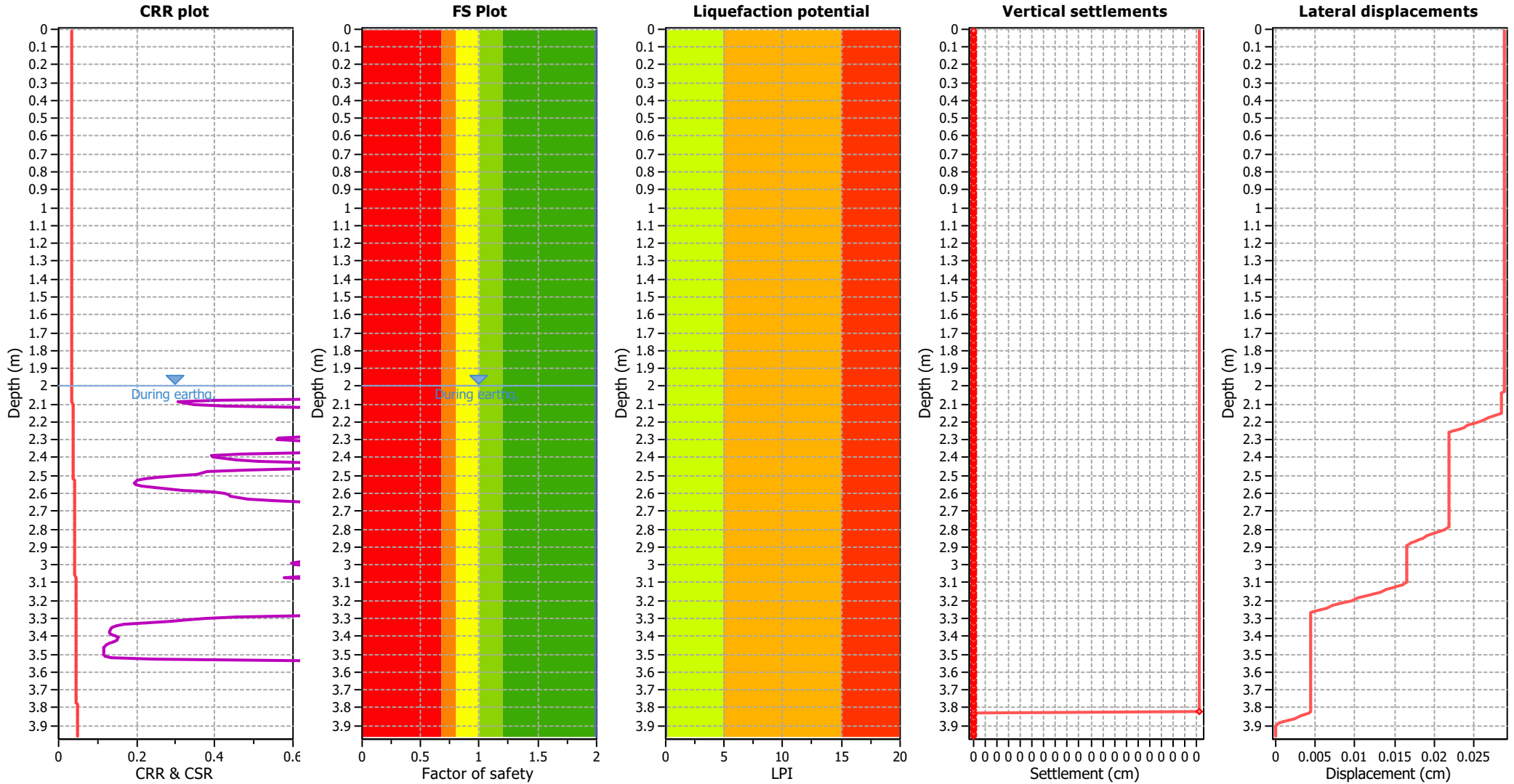
Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	2.00 m	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude $M_w$ :	5.67	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.11	Unit weight calculation:	Based on SBT	$K_o$ applied:	No		





### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_0$ applied:	No
Earthquake magnitude $M_w$ :	5.67	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.11	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	N/A

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

LIQUEFACTION ANALYSIS REPORT

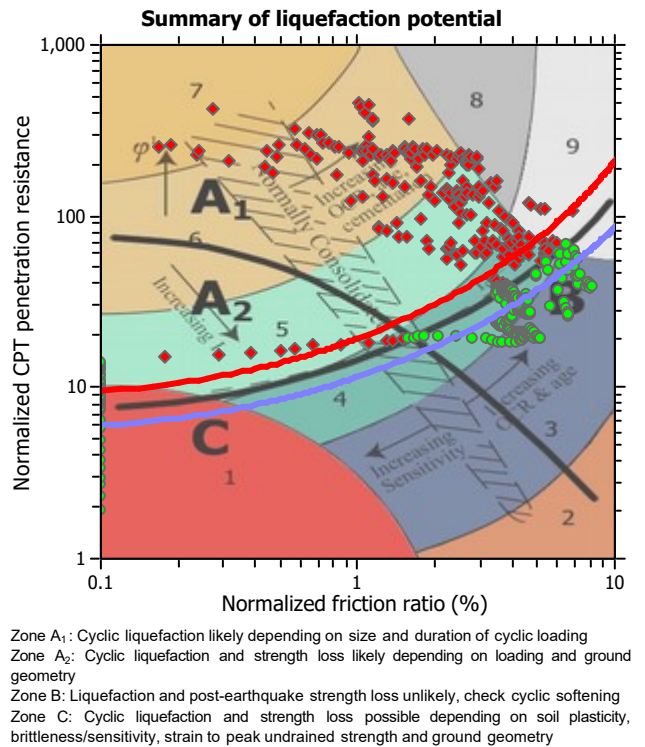
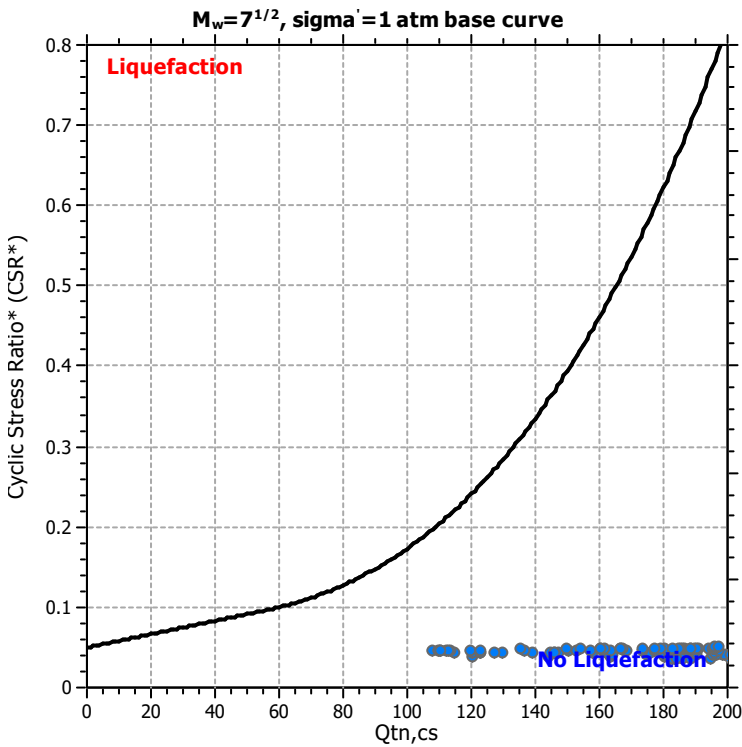
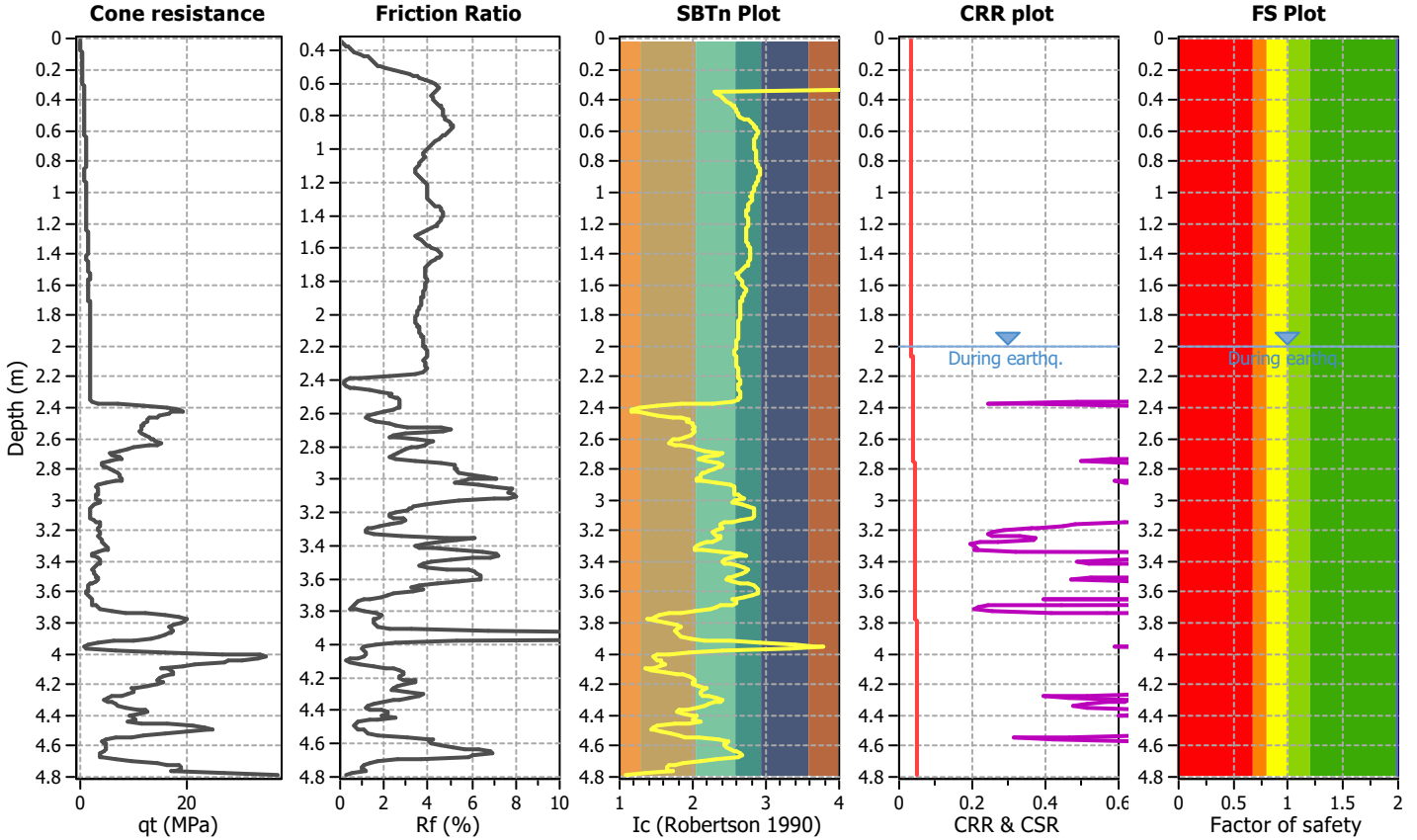
Project title : Met. Der. Porto Empedocle

Location :

CPT file : pe-b-c48

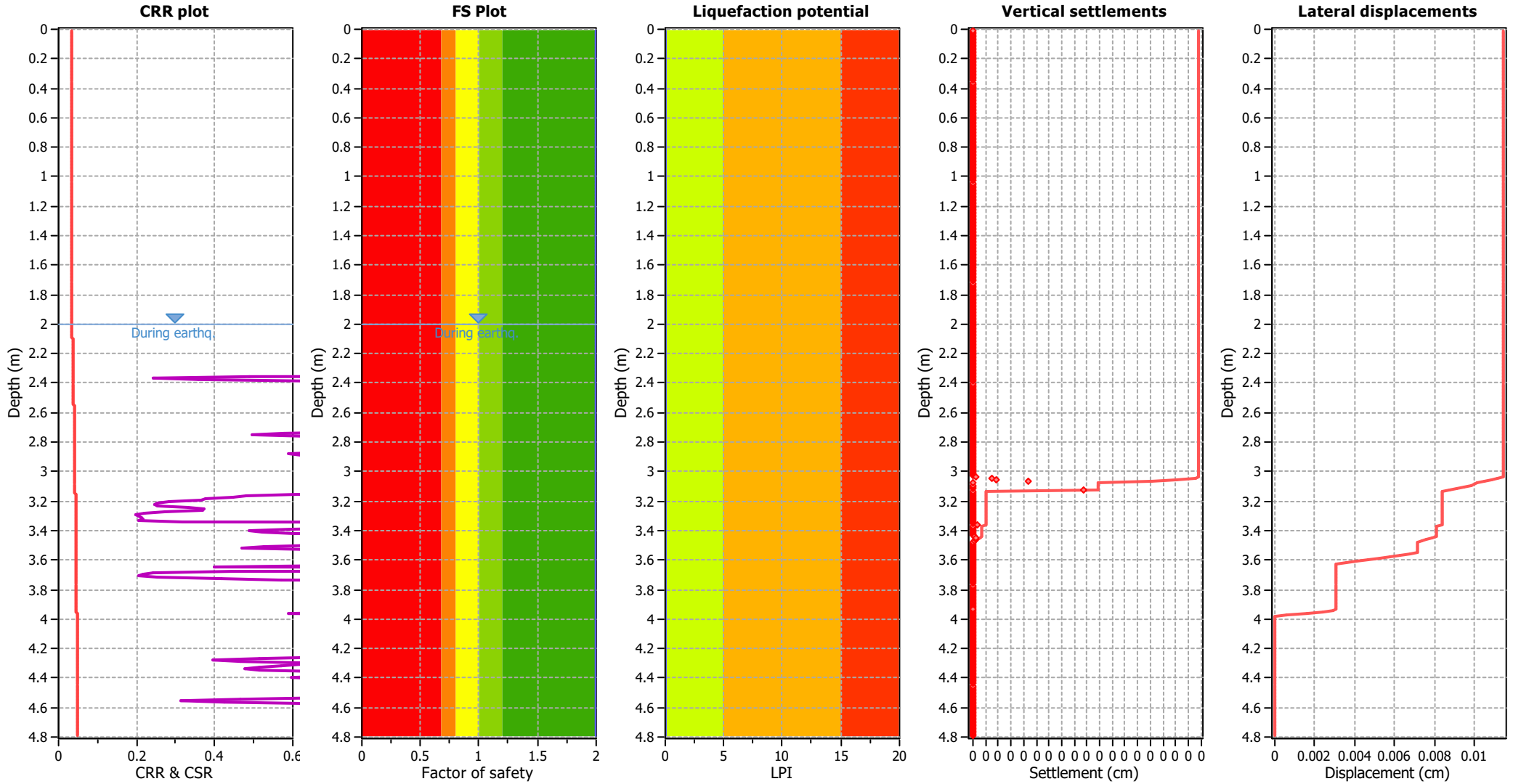
Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	2.00 m	Use fill:	No	Clay like behavior	
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	2.00 m	Fill height:	N/A	applied:	All soils
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth applied:	No
Earthquake magnitude $M_w$ :	5.67	Ic cut-off value:	2.60	Trans. detect. applied:	No	Limit depth:	N/A
Peak ground acceleration:	0.11	Unit weight calculation:	Based on SBT	$K_o$ applied:	No	MSF method:	Method based





### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	2.00 m	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_0$ applied:	No
Earthquake magnitude $M_w$ :	5.67	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.11	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	2.00 m	Fill height:	N/A	Limit depth:	N/A

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

LIQUEFACTION ANALYSIS REPORT

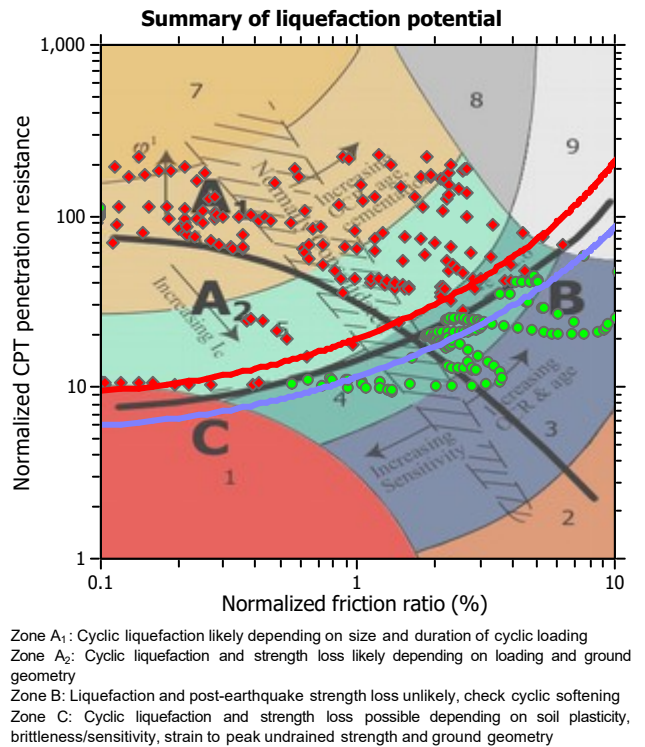
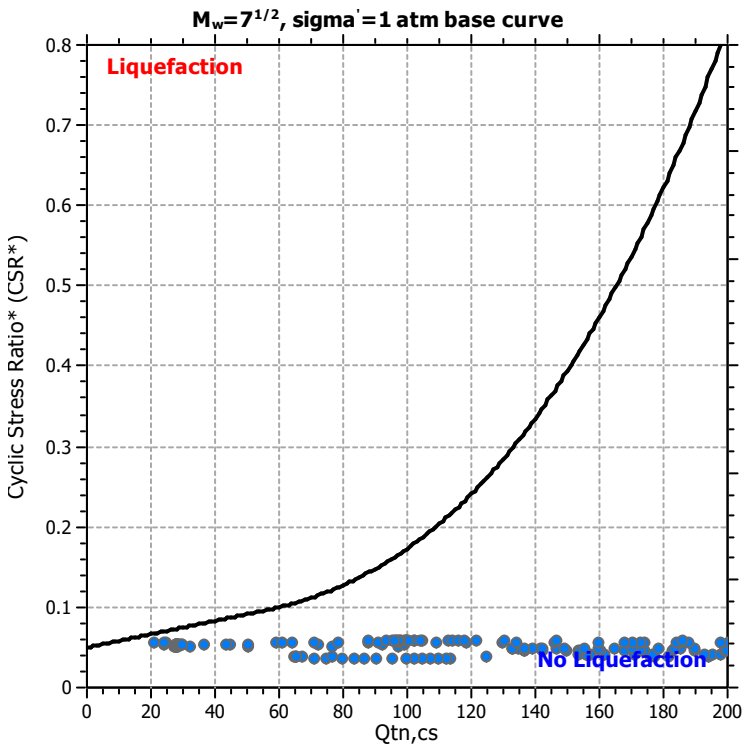
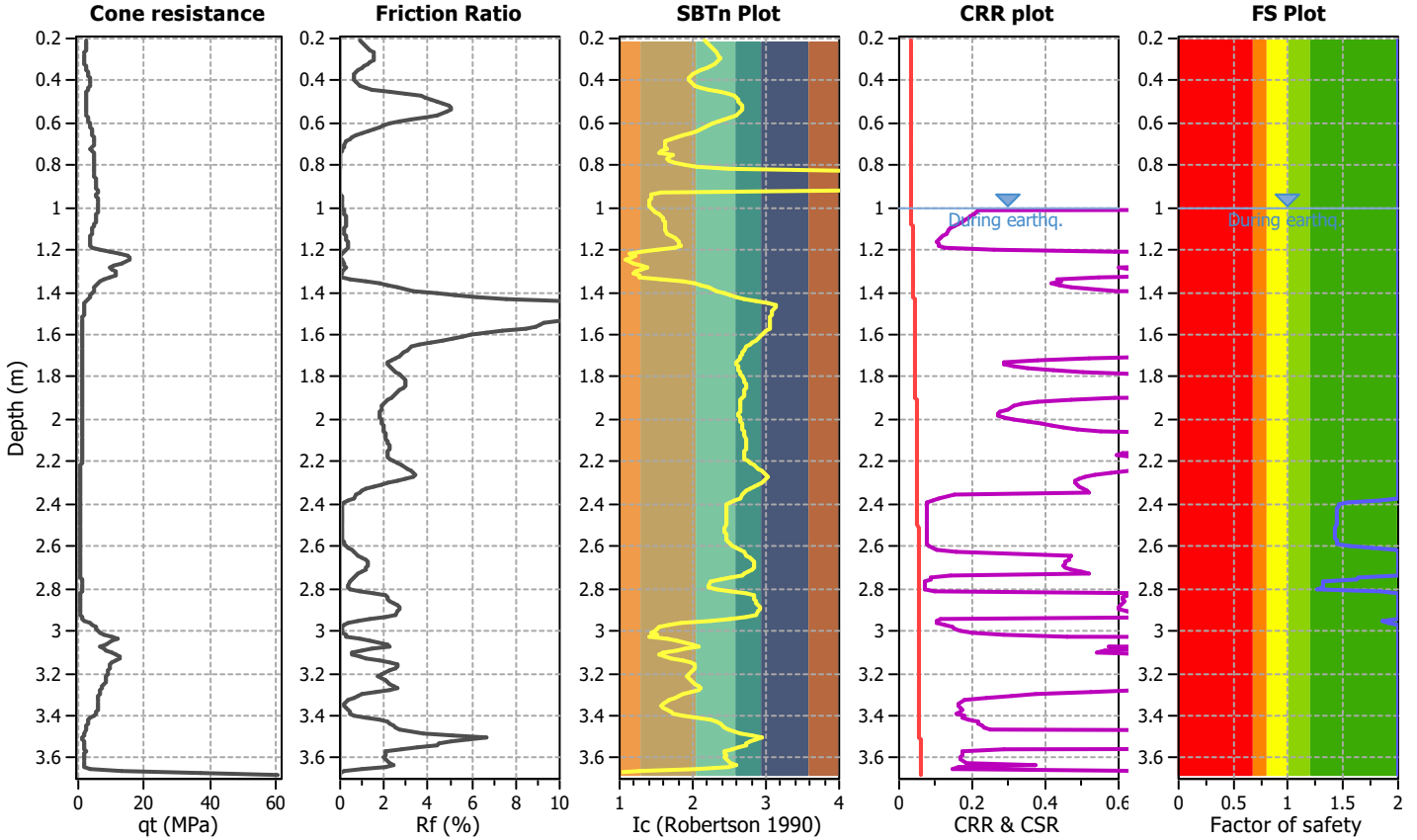
Project title : Met. Der. Porto Empedocle

Location :

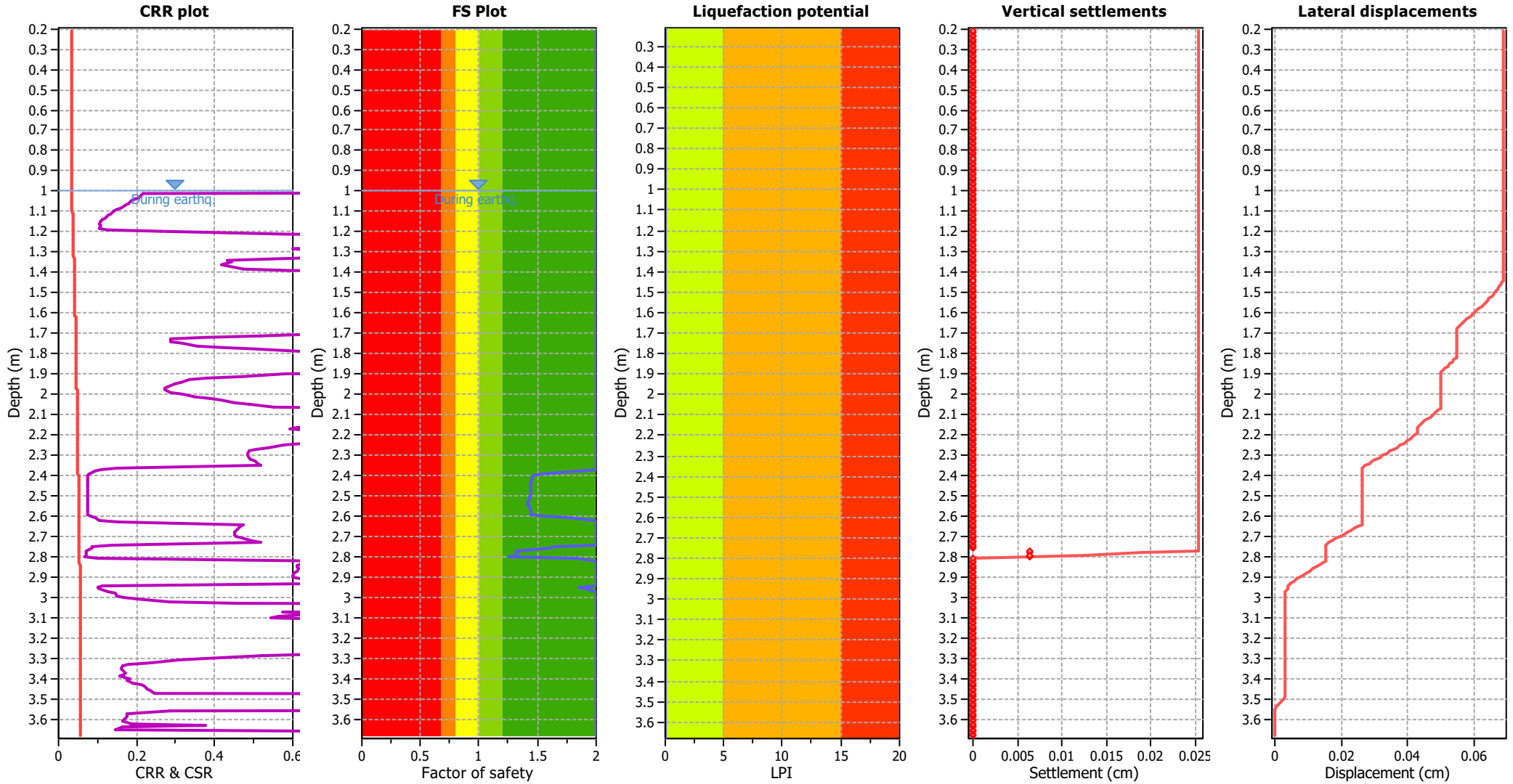
CPT file : ag-b-c67

Input parameters and analysis data

Analysis method:	Robertson (2009)	G.W.T. (in-situ):	1.00 m	Use fill:	No	Clay like behavior applied:	All soils
Fines correction method:	Robertson (2009)	G.W.T. (earthq.):	1.00 m	Fill height:	N/A	Limit depth applied:	No
Points to test:	Based on Ic value	Average results interval:	3	Fill weight:	N/A	Limit depth:	N/A
Earthquake magnitude $M_w$ :	5.80	Ic cut-off value:	2.60	Trans. detect. applied:	No	MSF method:	Method based
Peak ground acceleration:	0.10	Unit weight calculation:	Based on SBT	$K_o$ applied:	No		



### Liquefaction analysis overall plots



**Input parameters and analysis data**

Analysis method:	Robertson (2009)	Depth to water table (earthq.):	1.00 m	Fill weight:	N/A
Fines correction method:	Robertson (2009)	Average results interval:	3	Transition detect. applied:	No
Points to test:	Based on Ic value	Ic cut-off value:	2.60	$K_0$ applied:	No
Earthquake magnitude $M_w$ :	5.80	Unit weight calculation:	Based on SBT	Clay like behavior applied:	All soils
Peak ground acceleration:	0.10	Use fill:	No	Limit depth applied:	No
Depth to water table (insitu):	1.00 m	Fill height:	N/A	Limit depth:	N/A

**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
- Unlike to liquefy
- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

## SPT BASED LIQUEFACTION ANALYSIS REPORT

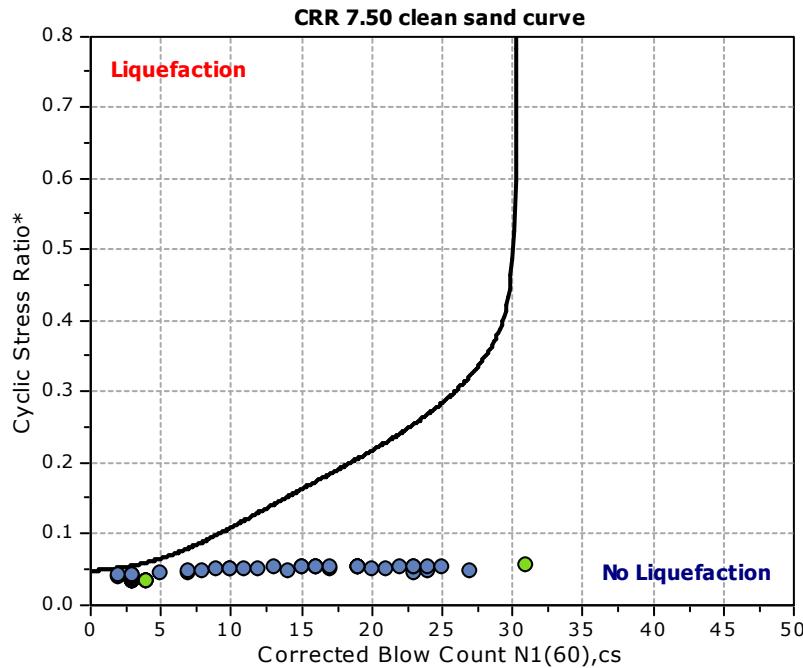
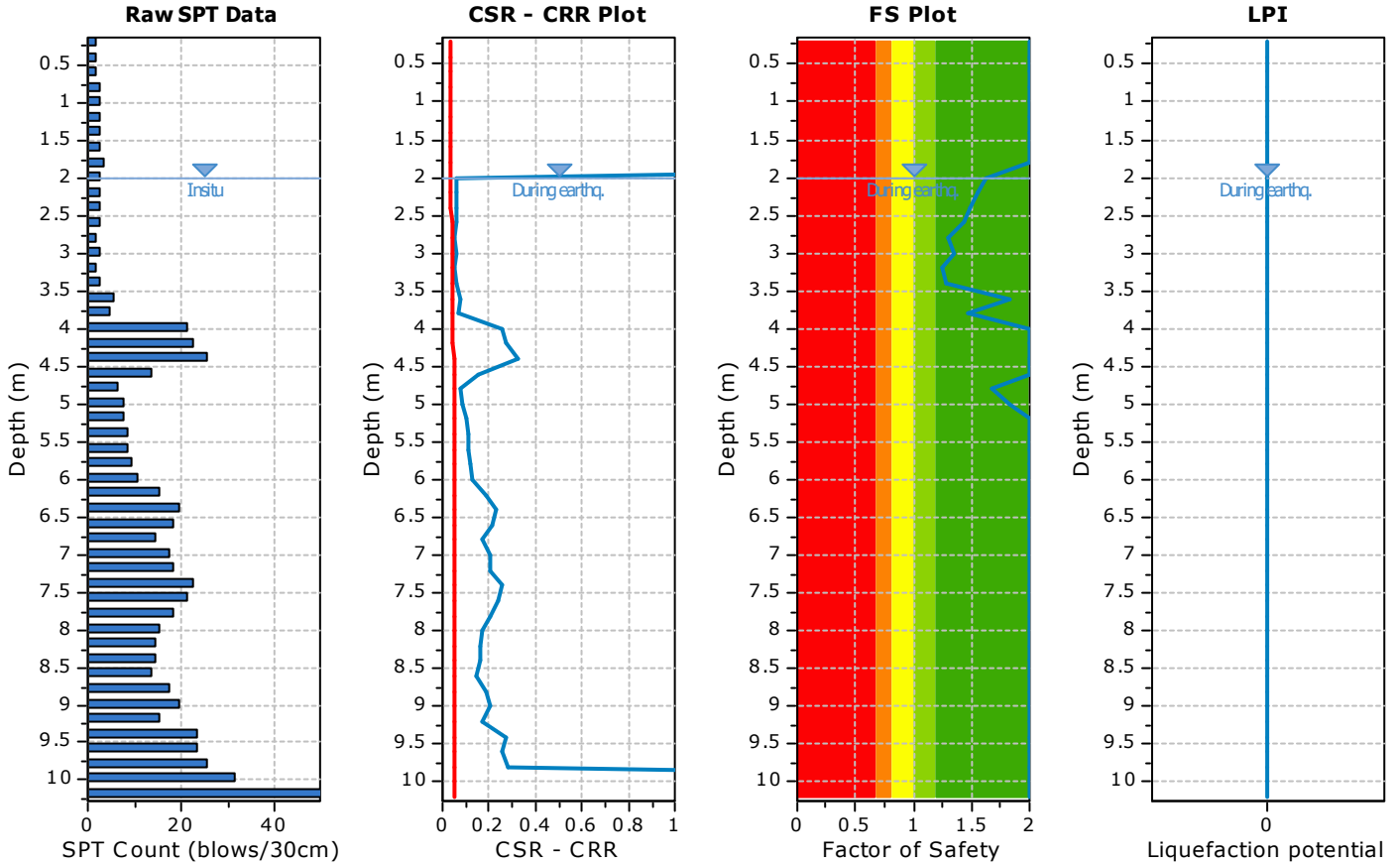
**Project title :**

**SPT Name: PE-B-D47a**

**Location :**

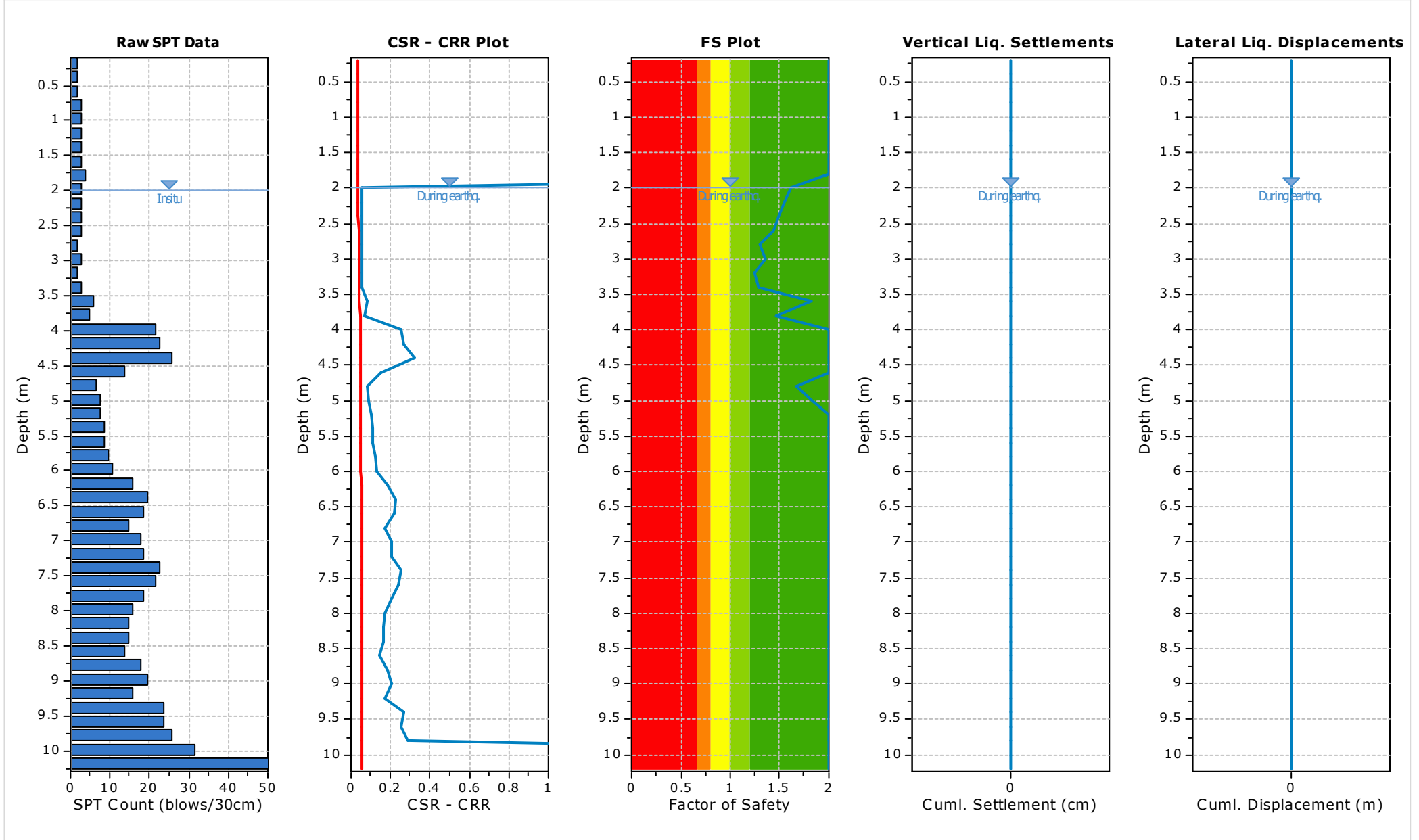
**:: Input parameters and analysis properties ::**

Analysis method:	NCEER 1998	G.W.T. (in-situ):	2.00 m
Fines correction method:	NCEER 1998	G.W.T. (earthq.):	2.00 m
Sampling method:	Standard Sampler	Earthquake magnitude $M_w$ :	5.67
Borehole diameter:	65mm to 115mm	Peak ground acceleration:	0.11 g
Rod length:	1.00 m	Eq. external load:	0.00 kPa
Hammer energy ratio:	1.00		



- F.S. color scheme**
- Almost certain it will liquefy
  - Very likely to liquefy
  - Liquefaction and no liq. are equally likely
  - Unlike to liquefy
  - Almost certain it will not liquefy
- LPI color scheme**
- Very high risk
  - High risk
  - Low risk

**:: Overall Liquefaction Assessment Analysis Plots ::**



## SPT BASED LIQUEFACTION ANALYSIS REPORT

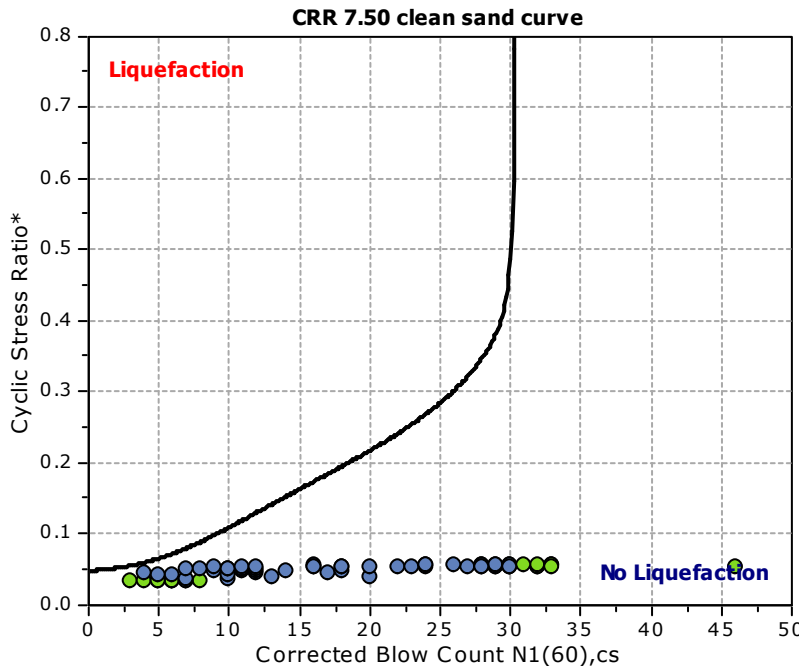
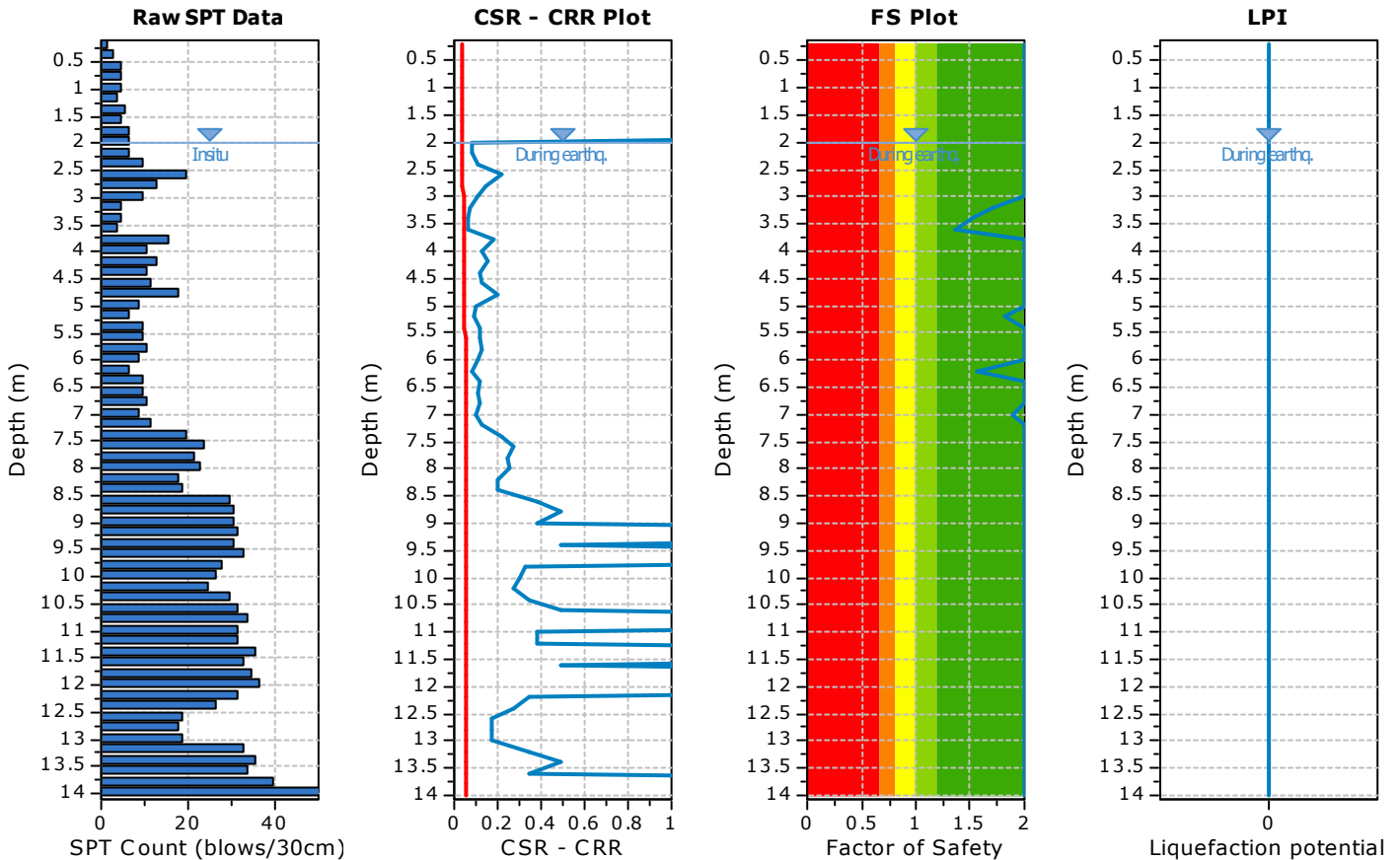
**Project title :**

**SPT Name: PE-B-D48a**

**Location :**

**:: Input parameters and analysis properties ::**

Analysis method:	NCEER 1998	G.W.T. (in-situ):	2.00 m
Fines correction method:	NCEER 1998	G.W.T. (earthq.):	2.00 m
Sampling method:	Standard Sampler	Earthquake magnitude $M_w$ :	5.67
Borehole diameter:	65mm to 115mm	Peak ground acceleration:	0.11 g
Rod length:	1.00 m	Eq. external load:	0.00 kPa
Hammer energy ratio:	1.00		

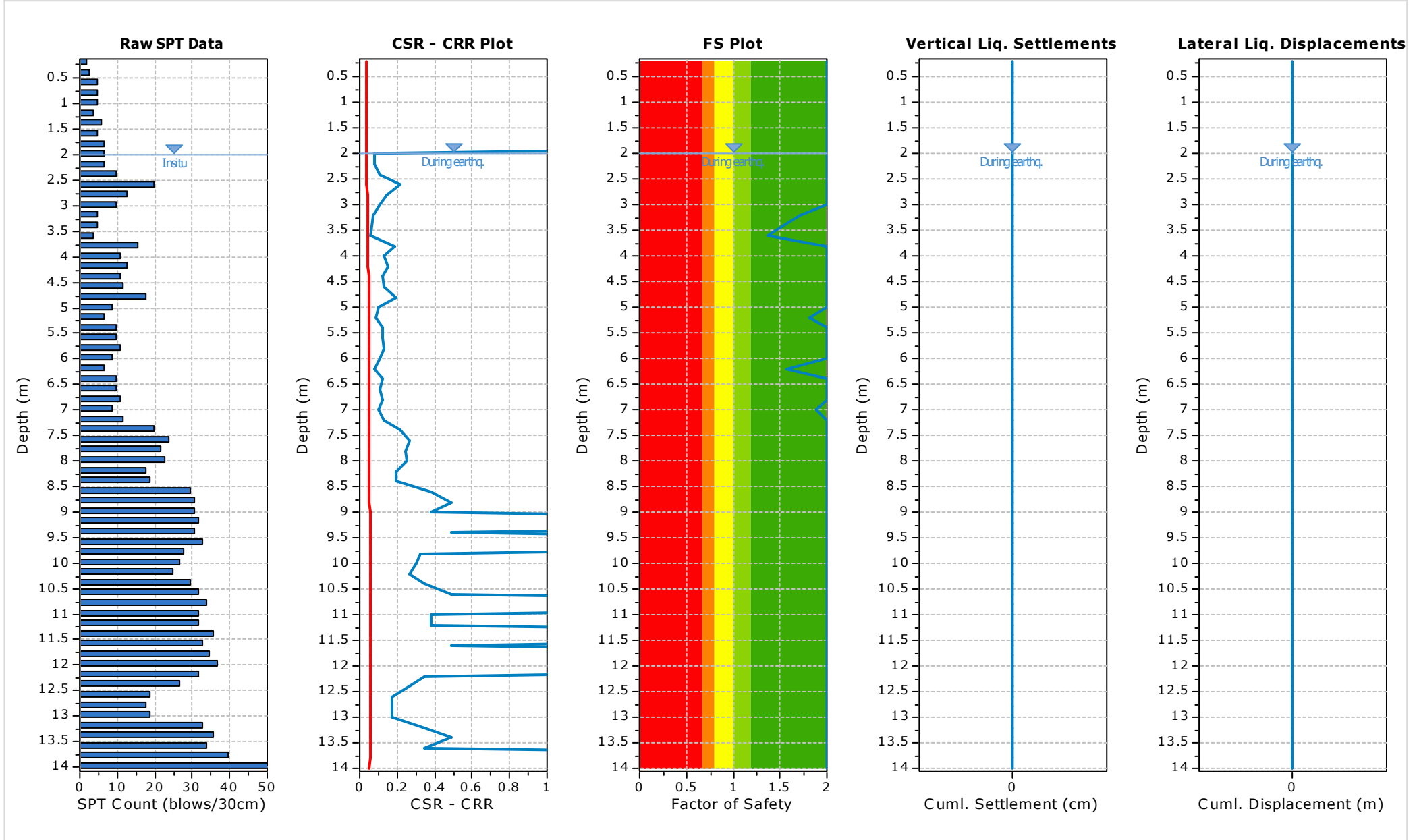


- F.S. color scheme**
- Almost certain it will liquefy
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- LPI color scheme**
- Very high risk
  - High risk
  - Low risk



**:: Overall Liquefaction Assessment Analysis Plots ::**



## SPT BASED LIQUEFACTION ANALYSIS REPORT

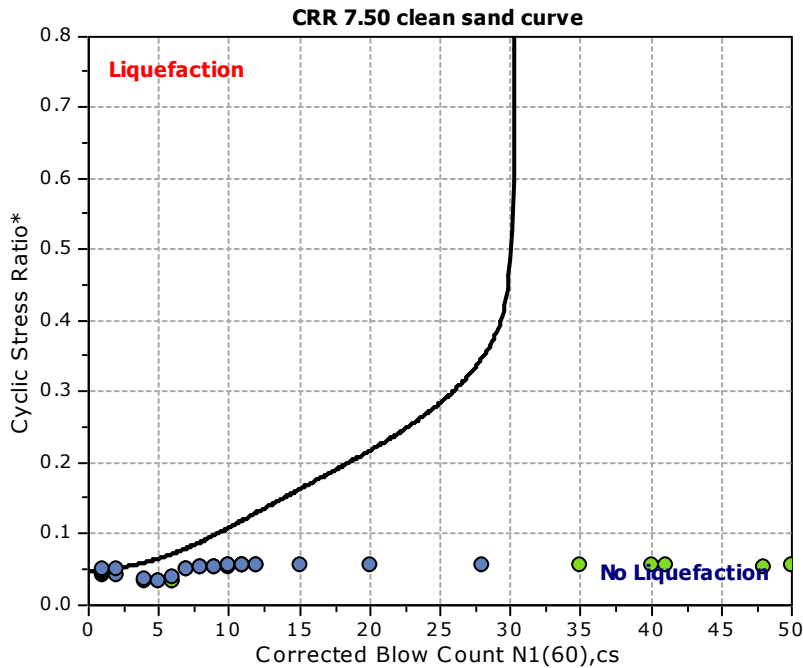
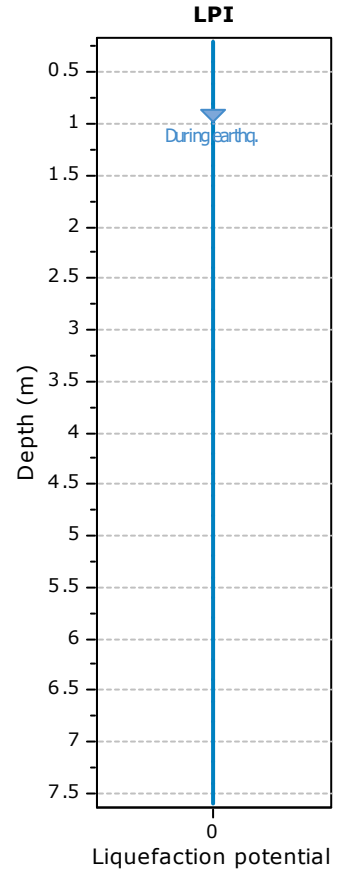
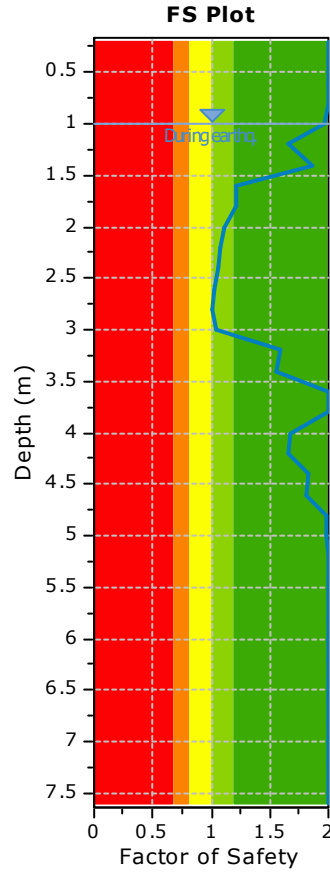
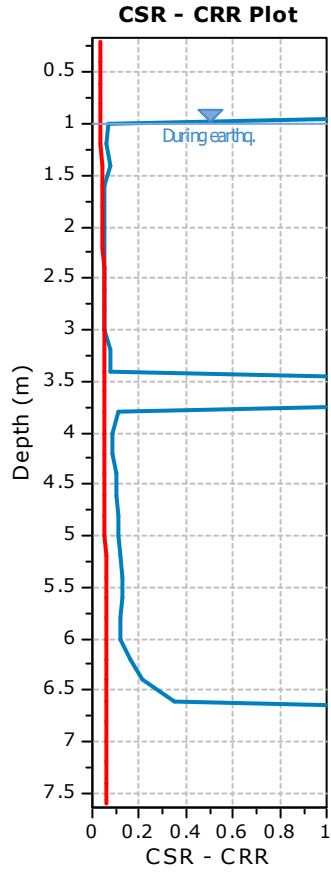
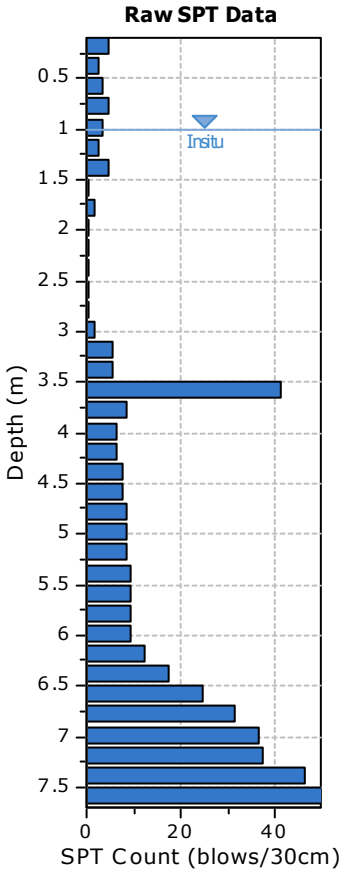
**Project title :**

**SPT Name: AG-B-D67a**

**Location :**

**:: Input parameters and analysis properties ::**

Analysis method:	NCEER 1998	G.W.T. (in-situ):	1.00 m
Fines correction method:	NCEER 1998	G.W.T. (earthq.):	1.00 m
Sampling method:	Standard Sampler	Earthquake magnitude $M_w$ :	5.80
Borehole diameter:	65mm to 115mm	Peak ground acceleration:	0.10 g
Rod length:	1.00 m	Eq. external load:	0.00 kPa
Hammer energy ratio:	1.00		



**F.S. color scheme**

- Almost certain it will liquefy
- Very likely to liquefy
- Liquefaction and no liq. are equally likely
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- Almost certain it will not liquefy

**LPI color scheme**

- Very high risk
- High risk
- Low risk

**:: Overall Liquefaction Assessment Analysis Plots ::**

